
FRBSF WEEKLY LETTER

October 2, 1987

How Reliable is M1A?

M1 grew at a very rapid 13½ percent average annual rate in 1985 and 1986. Under normal circumstances, such rapid growth would have preceded a surge in output and inflation, but output growth has remained moderate and inflation relatively subdued. Prior to this episode, the Federal Reserve had often relied heavily on M1 in the conduct of monetary policy. In 1987, for the first time, the Fed decided not to establish an M1 target range. The breakdown in the relationship between M1 and macroeconomic developments has since spurred the search for other monetary aggregates that might provide useful information about the future course of the economy.

The authorization of interest-bearing checkable deposits (NOW accounts) in the 1980s is a commonly cited reason for M1's aberrant behavior. As a result, some observers have argued that M1A, which includes only noninterest-bearing currency and demand deposits, should be affected less by deregulation than M1, which includes NOWs. In fact, they have argued that M1A behaves like M1 prior to deregulation, and that M1A may therefore be a reliable alternative to M1 as a monetary policy indicator.

This *Letter* discusses the conceptual basis for this view and also looks at the available evidence. We can find no compelling reason for expecting M1A to behave like M1 did prior to deregulation. Moreover, our empirical evidence supports an even stronger inference: that movements in M1A provide little useful information about the future course of the economy.

Is M1A like M1 used to be?

An important reason for the stable and simple relationship between M1 and GNP that persisted for a substantial portion of the post-war period appears to be that interest on checkable deposits was prohibited by law. This prohibition apparently induced individuals to keep most of their savings-type balances in interest-bearing small time and saving deposits, as well as open market securities. In other words, the regulation of interest on checkable deposits effectively separated

transaction balances from those held for savings purposes, and thus set M1 apart from the broader monetary aggregates, M2 and M3.

The introduction of interest-bearing checkable deposits — NOW accounts, which are included in M1 — appears to have changed all that. Households use NOW accounts to store both savings and transactions balances. As a consequence, variations in the growth rate of M1 are likely to reflect not only planned changes in transactions (spending), but also the diverse set of factors that determine saving and portfolio allocation — such as changes in interest rate differentials between alternative liquid assets, uncertainty about future returns, and changes in investors' preferences for various maturities and liquidity characteristics. Such portfolio adjustments can interfere at various times with the relationships between M1, income, and prices.

This conclusion about the source of problems with M1 makes it tempting to look at narrower monetary aggregates, which exclude interest-bearing instruments, as monetary policy indicators. M1A is a natural candidate since neither of its components — demand deposits and currency in the hands of the public — bear interest. One might conclude, then, that M1A primarily contains transactions balances, and thus may have a stable relationship with GNP and prices.

Unfortunately, such a conclusion does not appear to be warranted by conceptual or empirical considerations. NOW accounts have attracted a substantial amount of household transaction balances that are excluded from M1A. There is no reason to expect that the behavior of M1A, which contains most business transaction accounts but only a fraction of those held by households, would bear much of a resemblance to the behavior of M1, which contained most business and household transaction accounts, prior to deregulation.

Furthermore, interest-sensitive households are more likely to have moved their transactions accounts into NOWs. Consequently, the nature

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of household transactions accounts still held in M1A is likely to differ from those that were held in M1 prior to deregulation. Deregulation may have affected the behavior of demand deposits held by firms as well, since it has provided firms with a variety of close substitutes.

Indicator value of M1A

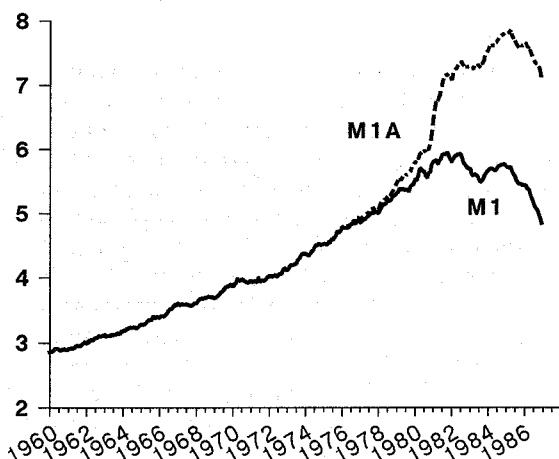
Even though conceptual considerations by themselves do not suggest that M1A would be a reliable monetary policy indicator, we cannot rule out the possibility on theory alone. For example, if the portion of household transaction accounts that remains in M1A bore some consistent relationship with that in NOW accounts, M1A might prove useful for the Federal Reserve in conducting monetary policy. The available empirical evidence, however, suggests otherwise.

First, even though M1A growth has been noticeably less volatile than M1 growth over the past few years, it has been far from stable. A 4½ percent average M1A growth rate over 1983-84 (fourth quarter to fourth quarter) was followed by an average rate of 10 percent in 1985-86. Real income grew strongly in 1983 and 1984, but at modest rates over the following two years, when M1A growth was rapid; nor did inflation show any signs of picking up in response to the acceleration in M1A.

Thus, as shown in Chart 1, the velocity of M1A (measured as the ratio of GNP in current dollars to M1A) increased in both 1983 and 1984 (similar to its behavior over the 1960s and 1970s) but declined dramatically in 1985 and 1986. M1A's velocity grew at an average annual rate of approximately 3.5 percent over 1983-84, but fell at a 4.5 percent average annual rate over 1985-86. While this behavior was less volatile than that of M1's velocity, the sharp fall in M1A velocity over the past two years represents a major departure from past trends.

Even though M1A by itself does not appear to contain very much information about future movements in GNP and prices, it still is possible that this aggregate contains information over and above that contained in other variables. If this were the case, a combination of M1A and these other variables could be used as an indicator of future developments in the economy.

**Chart 1
Velocity**



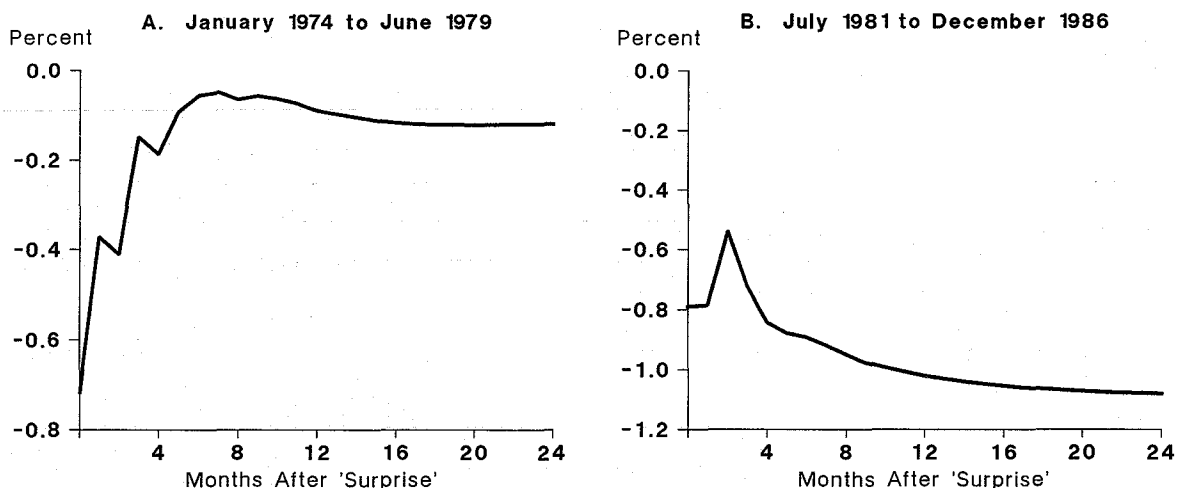
To test for this, we used a technique called vector autoregression to examine the relationship between real personal income, the price level, the six-month commercial paper rate, the non-M1A components of M3, and M1A itself. First, we used all these variables to predict M1A. We then looked at how M1A velocity would be affected by an increase in M1A that could *not* be predicted on the basis of these variables. For M1A to be a useful indicator for monetary policy, such a positive "surprise" in M1A should be followed by an increase in income. Since velocity is defined as the ratio of income to money, the increase in income implies that velocity should tend to return to its original level.

We present the results of this exercise for two different time periods in Chart 2 — the pre-deregulation period from the beginning of 1974 to mid-1979 and the post-deregulation period from mid-1981 to the end of 1986. The chart shows the average cumulative changes in M1A velocity that occurred in response to an unpredicted 1-percent increase in M1A. It is useful to keep in mind that over most of the 1970s, M1A was virtually identical with M1. Thus, a comparison of the two panels shows how M1A today compares with M1 prior to deregulation.

In the pre-deregulation period, velocity tended to return to its original level shortly after a sur-

Chart 2

Response of M1A Velocity to a 1 Percent M1A Surprise



prise increase in M1A. Thus, a permanent 1-percent change in M1A would have been followed by an equal permanent increase in income. By contrast, during the 1980s, the surprise in M1A is followed essentially by no change in income because a 1-percent increase in M1A leads to a 1-percent decrease in velocity. This evidence suggests that, during the 1980s, changes in M1A do not provide useful information about future changes in income.

Conclusion

A breakdown in recent years in the relationship between M1 and GNP has forced the Fed to rely more heavily on its broader monetary aggre-

gates, M2 and M3, which include savings-type balances. Nevertheless, there remain strong theoretical reasons to believe that a properly measured transactions aggregate would be a more useful monetary policy indicator. This consideration has stimulated analysis of alternative transactions aggregates, such as M1A. Unfortunately, our analysis suggests that M1A does not seem to bear a very close relationship with macroeconomic developments. More study is therefore needed to find a useful alternative to M1 as the primary guide to conducting monetary policy.

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MONETARY POLICY OBJECTIVES FOR 1987 AND 1988

On July 21, Federal Reserve Board Chairman Paul Volcker presented a mid-year report to the Congress on the Federal Reserve's monetary policy objectives for the remainder of 1987 and 1988. The report reviews economic and financial developments in 1987 and presents the economic outlook heading into 1988. For single or multiple copies of the report, write to the Public Information Department, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco, CA 94120, or phone (415) 974-2246.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 9/9/87	Change from 9/2/87	Change from 9/10/86 Dollar	Percent ⁷
Loans, Leases and Investments ^{1 2}	204,811	— 685	1,620	0.7
Loans and Leases ^{1 6}	180,987	— 735	2,555	— 1.3
Commercial and Industrial	51,057	— 123	441	0.8
Real estate	69,738	104	2,537	3.7
Loans to Individuals	37,038	— 91	4,175	— 10.1
Leases	5,410	— 5	130	— 2.3
U.S. Treasury and Agency Securities	16,899	73	5,458	47.7
Other Securities ²	6,925	— 23	1,284	— 15.6
Total Deposits	207,922	388	475	— 0.2
Demand Deposits	53,147	199	228	0.4
Demand Deposits Adjusted ³	35,736	— 638	13,016	— 26.6
Other Transaction Balances ⁴	20,553	262	2,871	16.2
Total Non-Transaction Balances ⁶	134,221	— 74	3,575	— 2.5
Money Market Deposit Accounts—Total	44,854	— 51	2,318	— 4.9
Time Deposits in Amounts of \$100,000 or more	31,087	— 83	3,895	— 11.1
Other Liabilities for Borrowed Money ⁵	24,558	586	1,543	— 5.9
Two Week Averages of Daily Figures	Period ended 9/7/87	Period ended 8/24/87		
Reserve Position, All Reporting Banks				
Excess Reserves (+)/Deficiency (—)	45	186		
Borrowings	6	24		
Net free reserves (+)/Net borrowed(—)	39	162		

¹ Includes loss reserves, unearned income, excludes interbank loans

² Excludes trading account securities

³ Excludes U.S. government and depository institution deposits and cash items

⁴ ATS, NOW, Super NOW and savings accounts with telephone transfers

⁵ Includes borrowing via FRB, TT&L notes, Fed Funds, RPs and other sources

⁶ Includes items not shown separately

⁷ Annualized percent change